

SEQUENCE LISTING

<110> Robbins, Paul D.
Mai, Jeffrey C.

<120> A COMPACT SYNTHETIC EXPRESSION VECTOR COMPRISING DOUBLE-STRANDED DNA
MOLECULES AND METHODS OF USE THEREOF

<130> AP35518 (072396.0263)

<140> To Be Assigned

<141> 2004-03-24

<150> 60/456,989

<151> 2003-03-24

<160> 50

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 1

gcaagcugac ccugaaguuc uucaagagag aacuucaggg ucagcuugcu u 51

<210> 2

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 2

gcaagcugac ccugaaguuc uu 22

<210> 3

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 3

gaacuucagg gucagcuugc uu 22

<210> 4

<211> 156

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 4

aatatttgca tgcgctatg tgttctggga aatcaccata aacgtgaaat gtctttggat 60
ttgggaatct tataagttct gtatgagacc acagatcccc gcaagctgac cctgaagttc 120
ttcaagagag aacttcaggg tcagcttgct ttttgg 156

<210> 5

<211> 12

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 5

gtggcgcagc gg 12

<210> 6

<211> 11

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 6

ggatcgaaac c 11

<210> 7

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 7

tttttttata tatacaggag gccgaggc 28

<210> 8

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 8

Cys Gly Ser Asp Ala Leu Asp Asp Phe Asp Leu Asp Met Leu Gly Ser
1 5 10 15

<210> 9

<211> 29
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> synthetic polypeptide

 <400> 9
 Cys Gly Ser Asp Ala Leu Asp Asp Phe Asp Leu Asp Met Leu Gly Ser
 1 5 10 15
 Asp Ala Leu Asp Asp Phe Asp Leu Asp Met Leu Gly Ser
 20 25

<210> 10
 <211> 15
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 10
 aggtcagcat gacct 15

<210> 11
 <211> 15
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 11
 aggtcatatt gacct 15

<210> 12
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 12
 gtgcttgctt tggtagcaca 20

<210> 13
 <211> 14
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 13
 aagattagca cagt 14

<210> 14
<211> 62
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 14
gaatcttata agttctgtat gagaccacag atccccgtgc ttgctttggt agcacaagca 60
tt 62

<210> 15
<211> 59
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 15
tttttcgata acatcttcga ccacctgaca cgattagaag gtggtcggag atgttgctg 59

<210> 16
<211> 82
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 16
gugcuugcuu ugguagcaca agcauugcug uuguagaggc ugguggaaga uuagcacagu 60
ccaccagcuu cuacaauagc uu 82

<210> 17
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 17
gcuguuguag aggcuggugg aa 22

<210> 18
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 18
ccaccagcuu cuacaauagc uu 22

<210> 19
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 19
cctcaaattg tctccaattt tcctttggca aattcc 36

<210> 20
<211> 100
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 20
aatatttgca tgtcgctatg tgttctggga aatcaccata aacgtgaaat gtctttggat 60
ttgggaatct tataagttct gtatgagacc acagatcccc 100

<210> 21
<211> 100
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 21
aatatttgca tgtcgctatg tgttctggga aatcaccata aacgtgaaat gtctttggat 60
ttgggaatct tataagttct gtatgagacc actctttccc 100

<210> 22
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 22
tcaccataaaa cgtgaaatgt ctttggattt gggaatctta taagttctgt atgagaccac 60
tctttccc 68

<210> 23
<211> 135
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (71)...(89)
<223> n = A,T,C or G

<221> misc_feature

<222> (93)...(111)

<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 23

caggactagt ctttttaggtc aaaaagaaga agctttgtaa ccgttggaac acgtagtgtg 60
gtgggttacac nnnnnnnnnn nnnnnnnnna tgnnnnnnnn nnnnnnnnnn ntccggttcg 120
aaaccgggacg tttttt 135

<210> 24

<211> 190

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (75)...(93)

<223> n = A,T,C or G

<221> misc_feature

<222> (97)...(115)

<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 24

aattcaggac tagtctttta ggtcaaaaag aagaagcttt gtaaccgttg gaaaacgtag 60
tgtagtgggt acacnnnnnn nnnnnnnnnn nnnatgnnnn nnnnnnnnnn nnnnttcgg 120
ttcgaaaccg ggcgttttta aagagagtcg cttttttttc tatcgctaata tctgtttttg 180
agtattttca 190

<210> 25

<211> 135

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (71)...(89)

<223> n = A,T,C or G

<221> misc_feature

<222> (101)...(119)

<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 25

aattcaggac tagtctttta ggtcaaaaag aagaagcttt gtaaccgttg gtttccgtag 60
tgtagtgggt nnnnnnnnnn nnnnnnnnnng ttcgactctg nnnnnnnnnn nnnnnnnnt 120
ttttctatcg ctaat 135

<210> 26

<211> 155

<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (71)...(89)
<223> n = A,T,C or G

<221> misc_feature
<222> (101)...(119)
<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 26
aattcaggac tagtctttta ggtcaaaaag aagaagcttt gtaaccgttg gtttccgtag 60
tgtagtggtt nnnnnnnnnn nnnnnnnnnng ttcgactctg nnnnnnnnnn nnnnnnnnnt 120
ttttctatcg ctaattctgt ttttgagtat tttca 155

<210> 27
<211> 135
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (66)...(84)
<223> n = A,T,C or G

<221> misc_feature
<222> (95)...(113)
<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 27
caggactagt cttttagggtc aaaaagaaga agctttgtaa ccgttggttt ccgtagtgta 60
gtggtnnnnn nnnnnnnnnn nnnncttctt gtcannnnnn nnnnnnnnnn nnnnttttgg 120
ttcgaaaccg ggcgg 135

<210> 28
<211> 194
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (70)...(88)
<223> n = A,T,C or G

<221> misc_feature
<222> (99)...(117)
<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 28

```

aattcaggac tagtcttttta ggtcaaaaaag aagaagcttt gtaaccgttg gtttccgtag 60
tgtagtggtg nnnnnnnnnn nnnnnnnnct tcctgtcann nnnnnnnnnn nnnnnnnnttt 120
ttggttcgaa accgggcgga aacaaagaga gtcgcttttt tttctatcgc taattctgtt 180
tttgagtatt ttca 194

```

```

<210> 29
<211> 135
<212> DNA
<213> Artificial Sequence

```

```

<220>
<221> misc_feature
<222> (79)...(97)
<223> n = A,T,C or G

```

```

<221> misc_feature
<222> (112)...(130)
<223> n = A,T,C or G

```

```

<223> synthetic oligonucleotide

```

```

<400> 29
aagtatttcg atttcttggc tttatatatc ttgtggaaag gacgaaacac cgtgcttgct 60
ttggtagcac atgtacttnn nnnnnnnnnn nnnnnnnaag atagcacagt annnnnnnnn 120
nnnnnnnnnn ttttt 135

```

```

<210> 30
<211> 150
<212> DNA
<213> Artificial Sequence

```

```

<220>
<221> misc_feature
<222> (94)...(112)
<223> n = A,T,C or G

```

```

<221> misc_feature
<222> (127)...(145)
<223> n = A,T,C or G

```

```

<223> synthetic oligonucleotide

```

```

<400> 30
cttaccgtaa cttgaaagta tttcgatttc ttggctttat atatcttgty gaaaggacga 60
aacaccgtgc ttgctttggt agcacatgta cttnnnnnnnn nnnnnnnnnn nnaagatagc 120
acagtannnn nnnnnnnnnn nnnnnnttttt 150

```

```

<210> 31
<211> 135
<212> DNA
<213> Artificial Sequence

```

```

<220>
<221> misc_feature
<222> (86)...(104)
<223> n = A,T,C or G

```

```

<221> misc_feature
<222> (115)...(133)
<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 31
attggtttat aggtgtaggc cacgtgaccg ggtgttcctg aaggggggct ataaaagggg 60
gtgggggcgc gttcgtcctc actctnnnnn nnnnnnnnnn nnnncttct gtcannnnnn 120
nnnnnnnnnn nnntt 135

<210> 32
<211> 158
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (106)...(124)
<223> n = A,T,C or G

<221> misc_feature
<222> (135)...(153)
<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 32
cttcggcatc aaggaaggtg attggtttat aggtgtaggc cacgtgaccg ggtgttcctg 60
aaggggggct ataaaagggg gtgggggcgc gttcgtcctc actctnnnnn nnnnnnnnnn 120
nnnncttct gtcannnnnn nnnnnnnnnn nnnntttt 158

<210> 33
<211> 135
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (83)...(101)
<223> n = A,T,C or G

<221> misc_feature
<222> (112)...(130)
<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 33
ctcatgcttg gctggcagcc atccagtttt agccagctcc tccctacctt cccttttttt 60
tatatataca ggaggccgag gcnnnnnnnn nnnnnnnnnn ncttcctgtc annnnnnnnn 120
nnnnnnnnnn ttttt 135

<210> 34
<211> 153
<212> DNA
<213> Artificial Sequence

```

```

<220>
<221> misc_feature
<222> (101)...(119)
<223> n = A,T,C or G

<221> misc_feature
<222> (130)...(148)
<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 34
tggctcccta ggtatgagct catgcttggc tggcagccat ccagtttttag ccagctcctc 60
cctaccttcc ctttttttta tatatacagg aggccgaggc nnnnnnnnnn nnnnnnnnnc 120
ttcctgtcan nnnnnnnnnn nnnnnnnntt ttt 153

<210> 35
<211> 130
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 35
ttcaggacta gtcttttagg tcaaaaagaa gaagctttgt aaccgttggt ttccgtagtg 60
tagtggtga atggcgtaa ggtggacgtt cgactctggt tcaccttgat gccgttcttt 120
ttctatcgct 130

<210> 36
<211> 11
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 36
tagttagtg g 11

<210> 37
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 37
gttcgactc 9

<210> 38
<211> 55
<212> DNA
<213> Artificial Sequence

```

<220>
 <223> synthetic oligonucleotide

<400> 38
 ttcaggacta gtcttttagg tcaaaaagaa gaagctttgt aaccgttggt ttccg 55

<210> 39
 <211> 8
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 39
 ctatcgct 8

<210> 40
 <211> 82
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 40
 gtttccgtag tgtagtggtt gaatggcgtc aagggtggacg ttcgactctg gttcaccttg 60
 atgccgttct ttttctatcg ct 82

<210> 41
 <211> 129
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 41
 tgcatttctt ggctttatat atcttgtgga aaggacgaaa caccgtgctt gctttggtag 60
 cacactgatt gcaggctgat cctgagggtc aagatagcac agtagaactt cagggtcagc 120
 ttgcttttt 129

<210> 42
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 42
 gtgcttgctt tggtagcaca 20

<210> 43
 <211> 13
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 43
 aagatagcac agt 13

<210> 44
 <211> 44
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 44
 tcgatttctt ggctttatat atcttgtgga aaggacgaaa cacc 44

<210> 45
 <211> 6
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 45
 ctgatt 6

<210> 46
 <211> 85
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 46
 gtgcttgctt tggtagcaca ctgattgcag gctgatcctg aggttcaaga tagcacagta 60
 gaacttcagg gtcagcttgc ttttt 85

<210> 47
 <211> 165
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> misc_feature
 <222> (106)...(124)
 <223> n = A,T,C or G

<221> misc_feature
 <222> (135)...(153)
 <223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 47
cgggatccat ttgcatgtcg ctatgtgttc tgggaaatca ccataaacgt gaaatgtctt 60
tggatttggg aatcttataa gttctgtatg agaccactct ttcccnnnnn nnnnnnnnnn 120
nnnncttcct gtcannnnnn nnnnnnnnnn nnnnttttga attcc 165

<210> 48
<211> 350
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (298)...(317)
<223> n = A,T,C or G

<221> misc_feature
<222> (327)...(345)
<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 48
cccgtataca gacttgagag gcctgtcctc gagcgggtgtt ccgcggtcct cctcgtatag 60
aaactcggac cactctgaga cgaaggctcg cgtccaggcc agcacgaagg aggctaagtg 120
ggaggggtag cggtcgttgt ccactagggg gtccactcgc tccagggtgt gaagacacat 180
gtcgccctct tcggcatcaa ggaagggtgat tggtttatag gtgtaggcca cgtgaccggg 240
tgttcctgaa ggggggctat aaaagggggg gggggcgcggt tcgtcctcac tctcttcnnn 300
nnnnnnnnnn nnnnnncttc ctgtcannnn nnnnnnnnnn nnnnnntttt 350

<210> 49
<211> 153
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (101)...(119)
<223> n = A,T,C or G

<221> misc_feature
<222> (130)...(148)
<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 49
tggctcccta ggtatgagct catgcttggc tggcagccat ccagtttttag ccagctcctc 60
cctaccttcc ctttttttta tatatacagg aggccgaggc nnnnnnnnnn nnnnnnnnnc 120
ttcctgtcan nnnnnnnnnn nnnnnnnntt ttt 153

<210> 50
<211> 121
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature

<222> (98) ... (116)

<223> n = A,T,C or G

<223> synthetic oligonucleotide

<400> 50

```
atttgcattgt cgctatgtgt tctgggaaat caccataaac gtgaaatgtc tttggatttg 60
ggaatcttat aagttctgta tgagaccact ctttcccnnn nnnnnnnnnn nnnnnntttt 120
t                                                    121
```

t

121